

106TH CONGRESS
2D SESSION

S. 1066

AN ACT

To amend the National Agricultural Research, Extension, and Teaching Policy Act of 1977 to encourage the use of and research into agricultural best practices to improve the environment, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Carbon Cycle and Ag-
5 ricultural Best Practices Research Act”.

1 **SEC. 2. FINDINGS.**

2 Congress finds that—

3 (1) agricultural producers in the United
4 States—

5 (A) have, in good faith, participated in
6 mandatory and voluntary conservation pro-
7 grams, the successes of which are unseen by the
8 general public, to preserve natural resources;
9 and

10 (B) have a personal stake in ensuring that
11 the air, water, and soil of the United States are
12 productive since agricultural productivity di-
13 rectly affects—

14 (i) the economic success of agricul-
15 tural producers; and

16 (ii) the production of food and fiber
17 for developing and developed nations;

18 (2) in addition to providing food and fiber, agri-
19 culture serves an environmental role by providing
20 benefits to air, soil, and water through agricultural
21 best practices;

22 (3) agricultural best practices include the more
23 efficient use of agriculture inputs and equipment;

24 (4)(A) agricultural best practices accentuate the
25 carbon cycle by increasing the conversion of carbon

1 dioxide from the air into plants that produce grain
2 and forage;

3 (B) at the end of the growing season, plant ma-
4 terial decomposes, adding carbon to soil;

5 (C) carbon can persist in soil for hundreds and
6 even thousands of years; and

7 (D) through conservation practices, the addi-
8 tional carbon in soil results in multiple environ-
9 mental benefits, erosion reduction, moisture reten-
10 tion, water quality improvements, and increased crop
11 yields;

12 (5) according to the Climate Monitoring and
13 Diagnostics Laboratory of the National Oceanic and
14 Atmospheric Administration, North American soils,
15 crops, rangelands, and forests absorbed an equiva-
16 lent quantity of carbon dioxide emitted from fossil
17 fuel combustion as part of the natural carbon cycle
18 from 1988 through 1992;

19 (6) the estimated quantity of carbon stored in
20 world soils is more than twice the carbon in living
21 vegetation or in the atmosphere;

22 (7) agricultural best practices can increase the
23 quantity of carbon stored in farm soils, crops, and
24 rangeland;

1 (8) by increasing use of voluntary agricultural
 2 best practices, it is possible to offset carbon dioxide
 3 emissions, thereby benefiting the environment, with-
 4 out implementing a United Nations-sponsored cli-
 5 mate change protocol or treaty;

6 (9) Federal research is needed to identify—

7 (A) the agricultural best practices that
 8 supplement the natural carbon cycle; and

9 (B) Federal conservation programs that
 10 can be altered to increase the environmental
 11 benefits provided by the natural carbon cycle;
 12 and

13 (10) increasing soil organic carbon is widely
 14 recognized as a means of increasing agricultural pro-
 15 duction and meeting the growing domestic and inter-
 16 national food consumption needs with a positive en-
 17 vironmental benefit.

18 **SEC. 3. AGRICULTURAL BEST PRACTICES.**

19 Title XIV of the National Agricultural Research, Ex-
 20 tension, and Teaching Policy Act of 1977 (7 U.S.C. 3101
 21 et seq.) is amended by adding at the end the following:

22 **“Subtitle N—Carbon Cycle and**
 23 **Agricultural Best Practices**

24 **“SEC. 1490. DEFINITIONS.**

25 “In this subtitle:

1 “(1) AGRICULTURAL BEST PRACTICE.—The
2 term ‘agricultural best practice’ means a voluntary
3 practice used by 1 or more agricultural producers to
4 manage a farm or ranch that has a beneficial or
5 minimal impact on the environment, including—

6 “(A) crop residue management;

7 “(B) soil erosion management;

8 “(C) nutrient management;

9 “(D) remote sensing;

10 “(E) precision agriculture;

11 “(F) integrated pest management;

12 “(G) animal waste management;

13 “(H) cover crop management;

14 “(I) water quality and utilization manage-
15 ment;

16 “(J) grazing and range management;

17 “(K) wetland management;

18 “(L) buffer strip use; and

19 “(M) tree planting.

20 “(2) CONSERVATION PROGRAM.—The term
21 ‘conservation program’ means a program established
22 under—

23 “(A) subtitle D of title XII of the Food Se-
24 curity Act of 1985 (16 U.S.C. 3830 et seq.);

1 “(B) section 401 or 402 of the Agricul-
 2 tural Credit Act of 1978 (16 U.S.C. 2201,
 3 2202);

4 “(C) section 3 or 8 of the Watershed Pro-
 5 tection and Flood Prevention Act (16 U.S.C.
 6 1003, 1006a); or

7 “(D) any other provision of law that au-
 8 thorizes the Secretary to make payments or
 9 provide other assistance to agricultural pro-
 10 ducers to promote conservation.

11 **“SEC. 1491. CARBON CYCLE AND AGRICULTURAL BEST**
 12 **PRACTICES RESEARCH.**

13 “(a) IN GENERAL.—The Department of Agriculture
 14 shall be the lead agency with respect to any agricultural
 15 soil carbon research conducted by the Federal Govern-
 16 ment.

17 “(b) RESEARCH SERVICES.—

18 “(1) AGRICULTURAL RESEARCH SERVICE.—The
 19 Secretary, acting through the Agricultural Research
 20 Service, shall collaborate with other Federal agencies
 21 to develop data and conduct research addressing soil
 22 carbon balance and storage, making special efforts
 23 to—

1 “(A) determine the effects of management
2 and conservation on soil organic carbon storage
3 in cropland and grazing land;

4 “(B) evaluate the long-term impact of till-
5 age and residue management systems on the
6 accumulation of organic carbon;

7 “(C) study the transfer of organic carbon
8 to soil; and

9 “(D) study carbon storage of commodities.

10 “(2) NATURAL RESOURCES CONSERVATION
11 SERVICE.—

12 “(A) RESEARCH MISSIONS.—The research
13 missions of the Secretary, acting through the
14 Natural Resources Conservation Service,
15 include—

16 “(i) the development of a soil carbon
17 database to—

18 “(I) provide online access to in-
19 formation about soil carbon potential
20 in a format that facilitates the use of
21 the database in making land manage-
22 ment decisions; and

23 “(II) allow additional and more
24 refined data to be linked to similar

1 databases containing information on
2 forests and rangeland;

3 “(ii) the conversion to an electronic
4 format and linkage to the national soil
5 database described in clause (i) of county-
6 level soil surveys and State-level soil maps;

7 “(iii) updating of State-level soil
8 maps;

9 “(iv) the linkage, for information pur-
10 poses only, of soil information to other soil
11 and land use databases; and

12 “(v) the completion of evaluations,
13 such as field validation and calibration, of
14 modeling, remote sensing, and statistical
15 inventory approaches to carbon stock as-
16 sessments related to land management
17 practices and agronomic systems at the
18 field, regional, and national levels.

19 “(B) UNIT OF INFORMATION.—The Sec-
20 retary, acting through the Natural Resources
21 Conservation Service, shall disseminate a na-
22 tional basic unit of information for an assess-
23 ment of the carbon storage potential of soils in
24 the United States.

1 “(3) ECONOMIC RESEARCH SERVICE REPORT.—

2 Not later than 1 year after the date of enactment
 3 of this section, the Secretary, acting through the
 4 Economic Research Service, shall submit to the
 5 Committee on Agriculture of the House of Rep-
 6 resentatives and the Committee on Agriculture, Nu-
 7 trition, and Forestry of the Senate a report that
 8 analyzes the impact of the financial health of the
 9 farm economy of the United States under the Kyoto
 10 Protocol and other international agreements under
 11 the Framework Convention on Climate Change—

12 “(A) with and without market mechanisms
 13 (including whether the mechanisms are permits
 14 for emissions and whether the permits are
 15 issued by allocation, auction, or otherwise);

16 “(B) with and without the participation of
 17 developing countries;

18 “(C) with and without carbon sinks; and

19 “(D) with respect to the imposition of tra-
 20 ditional command and control measures.

21 “(4) COOPERATIVE STATE RESEARCH, EDU-
 22 CATION, AND EXTENSION SERVICE.—

23 “(A) IN GENERAL.—The Cooperative State
 24 Research, Education, and Extension Service
 25 shall, through land-grant colleges and univer-

1 sities, develop a comprehensive national carbon
2 cycle and agricultural best practices research
3 agenda.

4 “(B) RESEARCH MISSIONS.—The research
5 missions of the Secretary, acting through the
6 Cooperative State Research, Education, and
7 Extension Service, include the provision,
8 through land-grant colleges and universities, of
9 research opportunities to improve the scientific
10 basis for using land management practices to
11 increase soil carbon sequestration needed for
12 producers, including research concerning inno-
13 vative methods of using biotechnology and
14 nanotechnology.

15 “(C) ACTIVITIES.—The Secretary, acting
16 through the Cooperative State Research, Edu-
17 cation, and Extension Service, shall—

18 “(i) identify, develop, and evaluate ag-
19 ricultural best practices using partnerships
20 comprised of Federal, State, or private en-
21 tities and the Department of Agriculture,
22 including the Agricultural Research Serv-
23 ice;

24 “(ii) develop necessary computer mod-
25 els to predict and assess the carbon cycle,

1 as well as other priorities requested by the
2 Secretary and the heads of other Federal
3 agencies;

4 “(iii) estimate and develop mecha-
5 nisms to measure changes in carbon levels
6 resulting from voluntary Federal conserva-
7 tion programs, private and Federal forests,
8 and other land uses;

9 “(iv) develop outreach programs, in
10 coordination with cooperative extension
11 services, to share information on carbon
12 cycles and agricultural best practices that
13 is useful to agricultural producers; and

14 “(v) research new technologies that
15 may increase carbon cycle effectiveness,
16 such as biotechnology and nanotechnology.

17 “(c) CONSORTIA.—

18 “(1) IN GENERAL.—The Secretary may des-
19 ignate not more than 2 carbon cycle and agricultural
20 best practices research consortia to carry out this
21 section.

22 “(2) SELECTION.—The consortia designated by
23 the Secretary shall be selected in a competitive man-
24 ner by the Cooperative State Research, Education,
25 and Extension Service.

1 “(3) CONSORTIA PARTICIPANTS.—The partici-
2 pants in the consortia may include—

3 “(A) land-grant colleges and universities;

4 “(B) State geological surveys;

5 “(C) research centers of the National Aer-
6 onautics and Space Administration;

7 “(D) other Federal agencies;

8 “(E) representatives of agricultural busi-
9 nesses and organizations; and

10 “(F) representatives of the private sector.

11 “(4) AUTHORIZATION OF APPROPRIATIONS.—

12 There are authorized to be appropriated to carry out
13 this subsection \$5,000,000 for each of fiscal years
14 2001 through 2005.

15 “(d) PROMOTION OF AGRICULTURAL BEST PRAC-
16 TICES.—The Secretary shall promote voluntary agricul-
17 tural best practices that take into account soil organic
18 matter dynamics, carbon cycle, ecology, and soil organisms
19 that will lead to the more effective use of soil resources
20 to—

21 “(1) enhance the carbon cycle;

22 “(2) improve soil quality;

23 “(3) increase the use of renewable resources;

24 and

1 “(4) overcome unfavorable physical soil prop-
2 erties.

3 “(e) ANNUAL REPORT.—The Secretary shall submit
4 to the Committee on Agriculture of the House of Rep-
5 resentatives and the Committee on Agriculture, Nutrition,
6 and Forestry of the Senate an annual report that de-
7 scribes programs that are or will be conducted by the Sec-
8 retary, through land-grant colleges and universities, to
9 provide to agricultural producers the results of research
10 conducted on agricultural best practices, including the re-
11 sults of—

12 “(1) research;

13 “(2) future research plans;

14 “(3) consultations with appropriate scientific
15 organizations;

16 “(4) proposed extension outreach activities; and

17 “(5) findings of scientific peer review under sec-
18 tion 103(d)(1) of the Agricultural Research, Exten-
19 sion, and Education Reform Act of 1998 (7 U.S.C.
20 7613(d)(1)).

21 **“SEC. 1492. CARBON CYCLE REMOTE SENSING TECH-**
22 **NOLOGY.**

23 “(a) IN GENERAL.—The Secretary, in cooperation
24 with the Administrator of the National Aeronautics and

1 Space Administration, shall develop a carbon cycle remote
2 sensing technology program—

3 “(1) to provide, on a near-continual basis, a
4 real-time and comprehensive view of vegetation con-
5 ditions; and

6 “(2) to assess and model agricultural carbon se-
7 questration.

8 “(b) USE OF CENTERS.—The Administrator of the
9 National Aeronautics and Space Administration shall use
10 regional earth science application centers to conduct re-
11 search under this section.

12 “(c) RESEARCHED AREAS.—The areas that shall be
13 the subjects of research conducted under this section
14 include—

15 “(1) the mapping of carbon-sequestering land
16 use and land cover;

17 “(2) the monitoring of changes in land cover
18 and management;

19 “(3) new systems for the remote sensing of soil
20 carbon; and

21 “(4) regional-scale carbon sequestration esti-
22 mation.

23 “(d) AUTHORIZATION OF APPROPRIATIONS.—There
24 is authorized to be appropriated to carry out this section
25 \$5,000,000 for each of fiscal years 2001 through 2005.

1 **“SEC. 1493. RESEARCH INCENTIVE PAYMENTS.**

2 “(a) IN GENERAL.—In addition to payments that are
3 made by the Secretary to producers under conservation
4 programs, the Secretary may, subject to appropriations
5 authorized in subsection (c), offer research incentive pay-
6 ments to producers that are participating in the conserva-
7 tion programs to compensate the producers for allowing
8 researchers to scientifically analyze, and collect informa-
9 tion with respect to, agricultural best practices that are
10 carried out by the producers as part of conservation
11 projects and activities that are funded, in whole or in part,
12 by the Federal Government.

13 “(b) CONFIDENTIALITY.—

14 “(1) IN GENERAL.—Except as provided in para-
15 graph (2), any information submitted to the Sec-
16 retary under subsection (a) shall be confidential and
17 may be disclosed only if required under court order.

18 “(2) RELEASE OF INFORMATION IN AGGREGATE
19 FORM.—The Secretary may release or make public
20 information described in paragraph (1) in an aggre-
21 gate or summary form that does not directly disclose
22 the identity, business transactions, or trade secrets
23 of any person that submits the information.

24 “(c) AUTHORIZATION OF APPROPRIATIONS.—There
25 are authorized to be appropriated such sums as are nec-

1 essary to carry out this section for each of fiscal years
 2 2001 through 2005.

3 **“SEC. 1494. ASSISTANCE FOR AGRICULTURAL BEST PRAC-**
 4 **TICES AND NATURAL RESOURCE MANAGE-**
 5 **MENT PLANS UNDER CONSERVATION PRO-**
 6 **GRAMS.**

7 “(a) IN GENERAL.—In addition to assistance that is
 8 provided by the Secretary to producers under conservation
 9 programs, the Secretary, on request of the producers, shall
 10 provide, subject to appropriations authorized in subsection
 11 (c), education through extension activities and technical
 12 assistance to producers that are participating in the con-
 13 servation programs to assist the producers in planning,
 14 designing, and installing agricultural best practices and
 15 natural resource management plans established under the
 16 conservation programs.

17 “(b) INFORMATION TO DEVELOPING NATIONS.—The
 18 Secretary shall disseminate to developing nations informa-
 19 tion on agricultural best practices and natural resource
 20 management plans that—

21 “(1) provide crucial agricultural benefits for soil
 22 and water quality; and

23 “(2) increase production.

24 “(c) AUTHORIZATION OF APPROPRIATIONS.—There
 25 are authorized to be appropriated such sums as are nec-

1 essary to carry out this section for each of fiscal years
2 2001 through 2005.

3 **“SEC. 1495. TRACE GAS NETWORK SYSTEM.**

4 “(a) ESTABLISHMENT.—The Secretary, in conjunc-
5 tion with the Administrator of the National Oceanic and
6 Atmospheric Administration, may establish a nationwide
7 trace gas network system to research the flux of carbon
8 between soil, air, and water.

9 “(b) PURPOSE OF SYSTEM.—The trace gas network
10 system shall focus on locating appropriate research equip-
11 ment on or near agricultural best practices that are—

12 “(1) undertaken voluntarily;

13 “(2) undertaken through a conservation pro-
14 gram of the Department of Agriculture;

15 “(3) implemented as part of a program or ac-
16 tivity of the Department of Agriculture; or

17 “(4) identified by the Administrator of the Na-
18 tional Oceanic and Atmospheric Administration.

19 “(c) MEMORANDUM OF UNDERSTANDING.—The Sec-
20 retary may enter into a memorandum of understanding
21 with the Administrator of the National Oceanic and At-
22 mospheric Administration to ensure that research goals of
23 programs established by the Federal Government relating
24 to trace gas research are met through the trace gas net-
25 work system.

1 “(d) AUTHORIZATION OF APPROPRIATIONS.—There
2 is authorized to be appropriated to carry out this section
3 \$10,000,000.”.

Passed the Senate October 17 (legislative day, September 22), 2000.

Attest:

Secretary.

106TH CONGRESS
2D SESSION

S. 1066

AN ACT

To amend the National Agricultural Research, Extension, and Teaching Policy Act of 1977 to encourage the use of and research into agricultural best practices to improve the environment, and for other purposes.